

(Filed on April 17, 1998)

4WD-RCRA

SUBJECT: Evaluation of Southern Wood Piedmont's status under the RCRIS Corrective Action Environmental Indicator Event Codes (CA725 and CA750)  
EPA I.D. Number: FLD 004 053 450

FROM: Lael H. Butler (Signed on April 15, 1998)  
South Programs Section  
RCRA Programs Branch

Harbhajan Singh (Signed on April 15, 1998)  
South Programs Section  
RCRA Programs Branch

THRU: Kent Williams, Chief (Signed on April 15 1998)  
South Programs Section  
RCRA Programs Branch

TO: Narindar M. Kumar, Chief (Signed on April 16, 1998)  
RCRA Programs Branch  
Waste Management Division

## **I. PURPOSE OF MEMO**

This memo is written to formalize an evaluation of Southern Wood Piedmont's (SWP) status in relation to the following RCRIS corrective action codes:

- 1) Human Exposures Controlled Determination (CA725),
- 2) Groundwater Releases Controlled Determination (CA750).

The application of these event codes at SWP adheres to the event code definitions found in the Data Element Dictionary for the Resource Conservation and Recovery Information System (RCRIS).

Concurrence by the RCRA Programs Branch Chief is required prior to entering these event codes into RCRIS. Your concurrence with the interpretations provided in the following paragraphs and the subsequent recommendations is satisfied by dating and signing above. In summary, the following recommendations were made based on the evaluation:

- 1) CA725 IN
- 2) CA750 IN

## **II. HUMAN EXPOSURES CONTROLLED DETERMINATION (CA725)**

There are five (5) national status codes under CA725. These status codes are:

- 1) YE Yes, applicable as of this date.
- 2) NA Previous determination no longer applicable as of this date.
- 3) NC No control measures necessary.
- 4) NO Facility does not meet definition.
- 5) IN More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

Note that CA725 is designed to measure human exposures over the entire facility (i.e., the code does not track SWMU specific actions or success). Every area at the facility must meet the definition before a YE or NC status code can be entered for CA725. The NO status code

should be entered if there are current unacceptable risks to humans due to releases of hazardous wastes or hazardous constituents from any SWMU(s) or AOC(s). The IN status code is designed to cover those cases where insufficient information is available to make an informed decision on whether or not human exposures are controlled. If an evaluation determines that there are both unacceptable and uncontrolled current risks to humans at the facility (NO) along with insufficient information on contamination or exposures at the facility (IN), then the priority for the EI recommendation is the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NC status codes. In other words, YE, NC, NO and IN cover all of the scenarios possible in an evaluation or reevaluation of a facility for CA725. Therefore, it is Region 4's opinion that only YE, NC, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

This particular CA725 evaluation is the first evaluation performed by EPA for SWP. Because assumptions have to be made as to whether or not human exposures to current media contamination are plausible and, if plausible, whether or not controls are in place to address these plausible exposures, this memo first examines each environmental media (i.e., soil, groundwater, surface water, air) at the entire facility including any offsite contamination emanating from the facility rather than from individual areas or releases. After this independent media by media examination is presented, a final recommendation is offered as to the proper CA725 status code for SWP.

The following discussions, interpretations and conclusions on contamination and exposures at the facility are based on the following reference documents:

- 1) RCRA Facility Investigation (RFI) Report, 9/93 (w/ 11/97 Revisions);
- 2) Status Of Corrective Action Activities Report, 2/10/97;
- 3) Corrective Action Effectiveness Report, Number Six, 11/25/97; and
- 4) Part B Permit Renewal Application, 2/10/98.

### **III. FACILITY SUMMARY**

The SWP facility is located immediately north of Baldwin, Florida and west of U.S. Highway 301. The Town of Baldwin is located about 20 miles west of Jacksonville, Florida on Interstate 10, in the western portion of Duval County (see attached figure). Land use for the areas surrounding the site consists of residential (south of the site), farming (north of the site), and vegetated areas to the west, north and east of the site. The site is enclosed by a galvanized steel, chain link fence with a locking gate.

The SWP facility was a wood preserving plant for treatment of cross-ties, utility poles, switch-ties and cross arms. The facility used three types of wood preservatives including: chromated copper arsenate (CCA), creosote, and pentachlorophenol (PCP). The use of PCP was discontinued in May 1985. The use of creosote was phased out in November 1985, and CCA was used until June 1987.

Wastewater from the wood preserving process was discharged to a surface impoundment for evaporation and settling of organic constituents and solids. An EPA listed hazardous waste "K001", was generated as a result of treating plant wastewater. The K001 waste was an aqueous organic sludge containing organic constituent compounds common to creosote, PCP, cadmium, chromium and arsenic. No other hazardous wastes were placed in the surface impoundment. Use of the surface impoundment ceased in October 1983. The surface impoundment was closed in accordance with the Florida Department of Environmental (FDEP) Closure permit. Closure was completed in July 1988; however, due to the presence of groundwater contamination, SWP was required to obtain a Post-closure permit, which was issued September 28, 1988, and renewed January 5, 1994. The renewed Post-closure permit expires August 11, 1998, and a second permit renewal application is under review by both EPA Region 4 and the FDEP.

Wood preserving operations at the site were discontinued in 1988. The only remaining structures on site are an office building located on the southern portion of the site near the entrance gate, a pump house located on the northern portion of the site, the groundwater treatment system, and the oil recovery well system on the western portion of the site near the property boundary.

The RCRA Facility Assessment (RFA) Report, August 1986, identified 13 solid waste management units (SWMUs). There was one (1) regulated unit (the aforementioned surface impoundment) and 12 SWMUs. The SWMUs are addressed in the HSWA portion of the RCRA Permit administered by the EPA. As part of the HSWA Permit, effective date September 29, 1988, all 12 SWMUs required a RCRA Facility Investigation (RFI). Note: Both the Florida Department of Environmental Protection and the EPA project managers are initiating permit renewal actions.

#### **IV. MEDIA BY MEDIA DISCUSSION OF CONTAMINATION AND THE STATUS OF PLAUSIBLE HUMAN EXPOSURES**

##### **Groundwater**

Groundwater contains constituents of concern (COCs) in concentrations which exceed the FDEP Ground Water Protection Standards contained in the FDEP Permit. The inorganic COCs are arsenic, chromium and sulfide. The organic COCs are phenolics, light and heavy aromatics, toluene, ethylbenzene, xylene. Delineation of the extent of both the surficial and lower aquifer contamination indicates that the plume is contained within the site boundary.

There are three groundwater recovery wells which are located immediately down gradient of the former regulated unit, “The K001 Pond”, located in the north-western corner of the facility (groundwater flow is towards the north-northwest). These recovery wells capture the groundwater in the northwest portion of the site. However, there is a portion of the site, along the western property boundary (near well MW-56), where contaminated groundwater may have moved offsite. There are groundwater monitoring wells located along the western property line which are sampled on a quarterly basis. The most recent monitoring data for Upper and Lower Cypresshead Aquifers indicates less than detection for the inorganic and organic COCs. SWP continues to work to obtain an easement to access the adjacent undeveloped property in order to install a minimum of four groundwater monitoring wells and collect groundwater samples. At present, neither SWP’s nor the FDEP’s efforts to gain offsite access have been successful.

It was through the FDEP Post-closure permit that corrective action was initiated for the regulated unit. Three groundwater recovery wells were installed to act as a hydraulic barrier immediately downgradient of the regulated unit. Construction of the groundwater recovery and

treatment system started in late 1993. Start-up of the groundwater recovery and treatment system occurred in late August, 1994.

The treatment system consists of an equalization tank, bag filters and carbon adsorption units to remove organic constituents. Treated groundwater is either discharged to the NPDES outfall, or sprayed on the cover of the closed surface impoundment to irrigate the grass surface protection, or sprayed on auxiliary spray areas to irrigate the grass surface, or discharged via reinfiltration trenches in the west ditch area.

SWP has also undertaken voluntary corrective actions (source control) at the west ditch and drip track areas of the site. Voluntary corrective actions implemented at the west ditch area consists of the removal of water, the excavation of visually contaminated sediment and soil from the ditch, and the installation of an oil collection system. Construction for the expansion of corrective measures to enhance oil recovery and an in-situ bioremediation has also been completed. The effectiveness of an in-situ bioremediation is currently being monitored and treatment optimization is ongoing. A similar oil collection system is also installed at the drip track area.

In summary, releases have contaminated the surficial groundwater at concentrations above relevant actions levels onsite. The deeper aquifer, The Lower Cypresshead, appears to be little affected at this time. It is possible that in the western portion of the site, groundwater has migrated offsite and inorganic and organic contamination may be present in concentrations which exceed groundwater protection standards. Though a portion of the site's groundwater is undergoing recovery and treatment, there is insufficient information to determine if plausible human exposure exists and whether the human exposure to the offsite groundwater contamination is controlled.

At present, EPA has concurred with SWP's request to review four (4) separate document submittals as equivalent to a Corrective Measures Study (CMS) Report. These documents are:

1. Prototype Field Demonstration Workplan for the Remediation of West Ditch Area, August 1991;
2. Corrective Action Plan, November 1991;
3. Status of Corrective Action Activities, February 1997; and

4. The Current Status of Corrective Action Activities at the Site as contained in the Part B Permit Renewal Application, February 1998.

An EPA comment letter on the review of these documents is currently in preparation. The letter imposes requirements to submit responses (mostly additional information; and, for certain media (soil and groundwater) a plan(s) for further action) which will be inserted in the Part B Permit Renewal Application in the Corrective Action section.

**Based on the above discussion, there is insufficient information to determine if plausible human exposures to groundwater contamination may exist and further evaluation of existing control measures for groundwater are necessary. The facility, with FDEP assistance, continues to pursue access to the adjacent property. SWP is close to the process of executing access agreement with the property owners west of the site.**

**Surface Water**

The surface water features on the site consist of an unnamed creek on the northern end of the site and an NPDES ditch which collects storm water run-off and drains into the unnamed creek near the northern corner of the site. The unnamed creek discharges into Baldwin Bay which is located approximately 2,000 feet to the north of the site.

During the time when the facility was operational, there was both an “NPDES Ditch” which extended from south to north throughout the center of the site and a “North Ditch” along the northside of the former surface impoundment (see attached site drainage map). The southern portion of the “NPDES Ditch” was excavated in 1986. Soil samples were collected from the bottom of the excavated ditch prior to backfilling.

In December 1991 and January 1992, excavation activities were performed along both the north portion of the “NPDES Ditch” and the “North Ditch”. Soil samples were collected from both these excavations prior to backfilling. Also during this time frame, a “new” NPDES Ditch was constructed. This was accomplished by excavating and re-routing from the north to the center of the “NPDES Ditch”. The “new NPDES Ditch” was then tied into the existing outfall and sampling location (see attached Site Drainage Map). The NPDES outfall and sampling location has remained the same since the original “NPDES Ditch” was constructed.

Other than the “new NPDES ditch”, there are no existing surface water features on the site where an exposure could occur that would be harmful to human health; **therefore, it is concluded that there are no plausible surface water human exposures which must be controlled.**

## Soil

As previously stated, the SWP site is no longer operational and there is access control provided by a gate and locked entrance. With the exception of regularly scheduled groundwater sampling activities and operation/maintenance activities for the groundwater recovery and treatment system, there are no workers on site on a daily basis who would come in contact with contaminated soil. There is always the possibility for a trespasser to access the site, but no instances have been reported.

Site-specific constituents were detected in all soil samples during the RFI. The organic constituents which exceeded site-specific soil action levels were chrysene, benzo (a) anthracene, benzo (b,k) fluoranthene, indeno (1,2,3-cd) pyrene, benzo (a) pyrene, dibenzo (a,h) anthracene and arsenic. The surface soil samples (0-1.5 feet) contained higher concentrations of these constituents than the deeper soil samples (1.5 to 7.5 feet).

SWP conducted a voluntary effort and excavated visually contaminated soils at several areas onsite. Specifically, at “The West Ditch Area”, visually contaminated soil was excavated and disposed offsite. Shallow (18-24" below original grade) oil collection recovery trenches & sumps were installed. An oil recovery system was installed to transport the recovered oil to the oil collection tank in the treatment building. Groundwater is recovered and pumped to a biological treatment system. The treated effluent then filters back into the subsurface trenches to provide a “flushing” effect and enhance the residual oil recovery from the surficial soils.

In The Drip Track Area, there was source removal by excavation and offsite disposal of visually contaminated soil. Soil was removed to depths of approximately 2-3 feet below original grade and disposed offsite. A similar corrective action system that is in place at The West Ditch Area is proposed for The Drip Track Area.

There remain several areas onsite where the surface soil concentrations of phenolic, light and heavy aromatic constituents are above soil action levels. These soil action levels were



calculated for site-specific constituents using the Subpart S equations and the available toxicity values and equivalency factors from EPA Region 4.

As stated in the Groundwater Section, EPA has concurred with SWP's request to review four (4) separate document submittals as equivalent to a Corrective Measures Study (CMS) Report. EPA's comment letter imposes requirements to submit responses (mostly additional information; and, for certain media (soil and groundwater) a plan(s) for further action) which can be inserted in the Part B Permit Renewal Application in the Corrective Action section.

**At present, the only exposure potential is limited to professionals, who are onsite quarterly to collect samples. The site is fenced and inaccessible; therefore, the plausible human exposures are controlled at this time. If the land use at the current contaminant levels or the access to the site changes in the future, the plausible human exposures to soils must be re-evaluated.**

### **Air**

Releases to the air from soil, groundwater and/or surface water are not anticipated to occur. The most applicable air exposure scenario is the worker exposure scenario. For the worker scenario, it is estimated that a professional technician is on-site on a quarterly basis to collect groundwater and influent/effluent samples. The technician is required to be skilled and specifically trained in the collection of these samples and the personal protection requirements of the site. An average worker exposure estimate is that the technician is on-site 1-2 days per quarter for 4 quarters in a 12 month cycle.

The other plausible exposure scenario is the trespasser scenario. The SWP site is no longer in operation and is enclosed by a galvanized steel, chain link fence with a locking gate. There have been no reported problems with trespassers entering the site.

Therefore, due to the limited time that a technician is estimated to spend on-site, the required training of the technician to perform sampling in a professional and protective manner, and the fact that there have been no reported problems with trespassers, **there exists no plausible human exposure to contamination via an air route .**

## **V. STATUS CODE RECOMMENDATION FOR CA725:**

As explained in Section IV, there exists the possibility that contaminated groundwater has migrated past the western property boundary. Of the pathways (i.e., soil, groundwater, surface water, air) examined for potential to cause human exposure, the possibility of groundwater contamination offsite remains uncertain. Also, there is potential for human exposure via the surficial soil pathway onsite.

However, for surface water and air, the determination is that there is no potential for human exposure. Because there is not enough information at this time to determine how far the groundwater contaminant plume may extend beyond the site boundary or if it exceeds relevant action levels, and whether the corrective measures conducted to date meet the requirement to be protective of human health and the environment, it is recommended that **CA725 IN** be entered into RCRIS.

## **VI. GROUNDWATER RELEASES CONTROLLED DETERMINATION (CA750)**

There are five (5) status codes listed under CA750:

- 1) YE Yes, applicable as of this date.
- 2) NA Previous determination no longer applicable as of this date.
- 3) NR No releases to groundwater.
- 4) NO Facility does not meet definition.
- 5) IN More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

The status codes for CA750 are designed to measure the adequacy of actively (e.g., pump and treat) or passively (e.g., natural attenuation) controlling the physical movement of groundwater contaminated with hazardous constituents above relevant action levels. The designated boundary (e.g., the facility boundary, a line up gradient of receptors, the leading edge of the plume as defined by levels above action levels or cleanup standards, etc.) is the point where the success or failure of controlling the migration of hazardous constituents is measured. Every contaminated area at the facility must be evaluated and found to have the migration of contaminated groundwater controlled before a "YE" status code can be entered.

If contaminated groundwater is not controlled in any area(s) of the facility, the NO status code should be entered. If there is not enough information at certain areas to make an informed decision as to whether groundwater releases are controlled, then the IN status code should be entered. If an evaluation determines that there are both uncontrolled groundwater releases for certain units/areas (NO) and insufficient information at certain units/areas of groundwater contamination (IN), then the priority for the EI recommendation should be the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NR status codes. In other words, YE, NR, NO and IN cover all of the scenarios possible in an evaluation or reevaluation of a facility for CA750. Therefore, it is Region 4's opinion that only YE, NR, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

This evaluation for CA750 is the first formal evaluation performed for SWP. Please note that CA750 is based on the adequate control of **all** contaminated groundwater at the facility.

The following interpretations and conclusions on contaminated groundwater at the facility are based on the reference documents listed at the end of Section II and the media specific discussions contained in Section IV.

## **VII. STATUS CODE RECOMMENDATION FOR CA750:**

Based on the data contained in the documents referenced in Section II and the discussion contained in Section IV, it has been determined that releases to the groundwater have occurred in

concentrations above relevant action levels. SWP has initiated (FDEP Permit) required and voluntary soil removal actions and is performing both groundwater recovery and treatment and oil recovery and disposal. However, at this time there is insufficient information to determine whether all the contaminated groundwater is being captured. There is some measure of doubt that along the western site boundary contaminated groundwater has migrated offsite. Therefore, it is recommended that **CA750 IN** be entered into RCRIS.

## **VIII. SUMMARY OF FOLLOW-UP ACTIONS**

As discussed, SWP has initiated corrective action for the regulated unit in accordance with the FDEP Post-closure Permit. SWP also conducted soil removal and instituted voluntary corrective action for several of the solid waste management units. In the Part B Permit Renewal Application, there is a Technical Work Plan for the expansion of corrective measures. At present, these documents are under review.

The remaining migration pathway issues to be resolved are whether contaminated groundwater has migrated offsite along the western property line; and, whether the remaining onsite contaminated surficial soil is a potential pathway of contamination. SWP is close to the process of executing access agreement with the property owners west of the site and the off-site groundwater sampling will be performed within approximately ninety (90) days of execution of the agreement.

Attachments